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SHORT COMMUNICATION

What are the unmet needs in the dental office/at home to treat dentin hypersensitivity?

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Oral discomfort due to tooth hypersensitivity is a common occurrence and a frequent reason why patients visit their dentists. Epidemiological oral studies demonstrated that in populations of 18–65 years old patients, 40–60 % have signs of hypersensitivity. Tooth hypersensitivity manifests itself clinically as a painful tooth reaction to sensory stimulus because of a loss of tooth hard tissue. This loss may be a reason of cracked enamel, tooth decay, non-carious lesions as well as tooth neck or root exposure as a result of periodontal diseases and therapy [1].

The successful management of dentin hypersensitivity is a very challenging treatment for dental professionals. The intensity can range between the different patients and is referred to the subjective perception. The temperature sensitivity assessment by cold air and the pain expression by a VAS scale are very subjective measurements that vary from patient to patient. Some approaches for objectification of the pain are the tactile hypersensitivity measurement with the Yeaple probe and the electrical stimulus sensitivity assessment with the Vitality scanner [2].

The caries-preventive benefits of fluoride are well-known established and proofed for decades [3]. Fluoride does some prevention to demineralization, controls remineralisation, promotes wear resistance, interferes with microbiology, reduces hypersensitivity, interferes directly with the biofilm and changes acid resistance in biofilm. Fluoride works for everyone independent of age [4].

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The upgoing stairway of therapy starts at non-invasive tooth pastes to mouthrinses to topical agents and ends at invasive therapy like resins or that leads to endodontics if an irreversible pulpitis occurs. Additional possible local treatments are a desensitisation by the Er:YAG laser or application of ozone.

For immediate release of sensations concerning exposed dental necks and hypersensitivity, the topic application of desensitising materials is of big interest. Recommendations for daily treatments in the dental offices are the use of solutions containing fluorides, varnishes with solvents and dentin bonding agents. Recommendations for home treatments are use of non-abrasive desensitising tooth pastes and rinsing solutions, habits change and patient's education to smart brushing with soft toothbrushes. So, more brushing should mean less caries, but not more erosions as Patrick Schmidlin mentioned.

One problem mentioned by Lars Petersson is the lack of efficient products which suit for elderly and mouth-dried patients. On the market, available toothpastes are not tolerated by mouth-dried patients. Manufacturer should be focused on that. There is a need for toothpastes without the necessity of rinsing because the elderly, especially mouth-dried patients, swallow it. It might be a matter of flavour because the slightest flavour is too strong for them.

Recent studies show that hypersensitivity can be reasonably well controlled by using toothpastes with a fluoride concentration of 1,500 ppm in long-term therapy, especially in the combination containing 8.0 % arginine [5]. Stannous fluoride creates a layer on the surface; amine fluoride precipitates for mineralizing solutions. In theory, potassium nitrate blocks the synapse between nerve cells, but no clear evidence is available for the support of potassium-containing toothpastes for dentine hypersensitivity [6]. By protein precipitation, glutaraldehyde leads to an occlusion of the dentinal tubules.

A single topical application of fluoride varnish reduces cervical hypersensitivity for up to 24 weeks [7]. Fluoride

varnish has a momentarily effect on hypersensitivity, but it must be repeated after some months and works best in combination with fluoride mouthrinses [8]. Beside the fluoride effect, colophonium as an ingredient in varnishes can additionally plug dental tubules.

In case of hypersensitivity, the fluoride rinsing is recommended twice a day as Peterson stated. As fluoridated toothpaste primarily led to a higher degree of remineralisation of dentine caries lesions, the additional use of fluoridated dental rinse will enhance this effect [9]. The option of application of casein CPP-ACP has no long-lasting effect on dental hypersensitivities [10].

Clinical recommendation for patients with a risk of root caries, toothpaste with aminofluoride in a concentration of 1,500 ppm twice a day has the highest priority. It is effective and cost-effective [11].

The next step is the application of a dentin bonding agent. Problem is that the dentine sealing is not visible, only if a filling is placed [12]. Dentin adhesives are plugging the tubules while coating the dentin.

One important additional therapeutical effect is the placebo effect. Because in clinical studies we find a success rate in placebo groups up to 40 %, this is a big issue. With this, a dentist should be aware and influence his therapeutic strategy. So we can state that a big part of the needs to treat exposed dental necks are met.

Conflict of interest The author declares that he has no conflict of interest.

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